

APPLICATION SERIAL NO. 10/616,398

PATENT

REMARKS

In the Office action dated February 9, 2006, pending claims 1-52 were rejected. Applicants traverse the rejection. Further examination and reconsideration respectfully are requested.

Status of Examiner's Consideration of Applicants' Information Disclosure Statements

Applicants are grateful for the examiner's acceptance of the Information Disclosure Statements filed on July 9, 2003 and on December 2, 2004.

Correction to Attorney Docket Number

The Attorney Docket Number as printed on the Office Action, 01485.0021-USU-01, is incorrect. The applicants wish to change this to 01485.0021-US-01.

Claim Rejections - 35 USC § 102

On page 2 of the Office Action, claims 1-48 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Application Publication No. US 2003/0067645 A1 ("Ibsen"). Applicants traverse.

To anticipate a claim, the reference must teach every element of the claim. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). Therefore, all claim elements, and their limitations, must be found in the prior art reference to maintain a rejection based on 35 U.S.C. §102. Applicants respectfully submit that Ibsen does not teach every element of claims 1, 18 and 19 and therefore fails to anticipate claims 1, 18 and 19.

Claim 1 recites a first transmissive diffraction grating that is oriented so that light reflected by it is reflected in a direction non-parallel to the diffraction plane. Ibsen discloses a spectrometer having two transmission gratings. In each of the various embodiments of the Ibsen device, a diffraction plane in the plane of the page is shown. For instance, in FIG. 6 of Ibsen, the beams emerging from grating 214 are angularly separated by wavelength, with the separation being in the plane of the page. Ibsen is not concerned with reflections from the gratings, and does not expressly disclose anything about grating orientations relating to reflections. It will also be appreciated that Ibsen does not necessarily disclose a transmissive diffraction grating that is oriented so that light reflected by it is reflected in a direction non-parallel to the diffraction plane. The gratings of Ibsen may, for example, be oriented in the manner shown in Figure 1 of the present application. In this arrangement, if light from incident beam 212 were to reflect off the grating 214, the reflection would also be in the plane of the page, and would therefore be parallel to the diffraction plane. Therefore, claim 1 is not anticipated by Ibsen.

Claim 18 recites a first transmissive diffraction grating that is oriented so that light reflected by it and reflected back through it reaches a focal plane of the first focusing unit outside the active aperture. This limitation is seen most clearly in the exemplary Figures 3A and 3B of the present application, where a tilt of the grating 110 by an angle α directs the multiply reflected light out of the aperture. As explained above in the context of claim 1, Ibsen is not concerned with reflections from the gratings, does not expressly disclose anything about grating orientations relating to reflections, and does not necessarily disclose a transmissive diffraction grating that is oriented so that light reflected by it and reflected back through it reaches a focal plane of the first focusing unit outside the active aperture. Therefore, claim 18 is not anticipated by Ibsen.

Claim 19 recites a limitation of orienting the first transmissive diffraction grating so that light reflected by the first transmissive diffraction grating is reflected out of the diffraction plane. As explained above in the context of claim 1, Ibsen is not concerned

orientations relating to reflections, and does not necessarily disclose a transmissive diffraction grating that is oriented so that any light reflected by it is reflected out of the diffraction plane. Therefore, claim 19 is not anticipated by Ibsen.

Dependent claims 2-17 and 20-23, which are dependent from independent claims 1 and 19, were also rejected under 35 U.S.C. §102(e) as being unpatentable over Ibsen. While applicants do not acquiesce with the particular rejections to these dependent claims, these rejections are moot in view of the remarks made in connection with independent claims 1 and 19. These dependent claims include all of the limitations of the base claim and any intervening claims, and may recite additional features which further distinguish these claims from the cited references. Therefore, dependent claims 2-17 and 20-23 are also in condition for allowance.

Regarding independent claim 24, Ibsen discloses that a grating itself may be substantially athermal (see paragraph 0086), but does not disclose attaching the grating to a frame in an athermal manner. There is no mention in Ibsen of how to ensure an athermal mount of the grating to a frame (see paragraphs 0147-0156). Accordingly, Ibsen does not disclose "a diffraction grating attached to a frame using a mounting, the mounting permitting independent thermal expansion and contraction of the grating and the frame under conditions of changing temperature", as recited by independent claim 24. Therefore, claim 24 is not anticipated by Ibsen.

Regarding independent claim 41, the examiner has not identified any disclosure in Ibsen of attaching the diffraction grating to the frame while permitting independent thermal expansion and contraction of the diffraction grating and the frame under conditions of changing temperature, as recited by independent claim 41. Therefore, claim 41 is not anticipated by Ibsen.

Dependent claims 25-40 and 42-48, which are dependent from independent claims 24 and 41, were also rejected under 35 U.S.C. §102(e) as being unpatentable over Ibsen. While applicants do not acquiesce with the particular rejections to these

made in connection with independent claims 24 and 41. These dependent claims include all of the limitations of the base claim and any intervening claims, and recite additional features which further distinguish these claims from the cited references. Therefore, dependent claims 25-40 and 42-48 are also in condition for allowance.

Claim Rejections - 35 USC § 103

On page 7 of the Office Action, claims 49-52 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Publication No. US 2003/0067645 A1 ("Ibsen"). Applicants traverse.

Claim 49 has been amended by deleting the limitation "the at least one diffraction grating unit, the first focusing unit and the optical detector are arranged to operate at light wavelengths in excess of 100 nm, and the temperature dependent wavelength shift of diffracted light at the optical detector is no more than 0.01 nm/K" and substituting the limitation "the temperature dependent wavelength shift of diffracted light at the optical detector is no more than 0.01 nm/K when the light received from the input port has a wavelength range greater than 100 nm." The amended is supported in the application as filed on page 12, lines 17-18. No new matter is added. To the extent that the deleted limitation may have implied an arrangement of elements to limit the lower operational range, the amendment is a broadening amendment. Even as amended, claim 49 is not obvious over Ibsen for the following reasons.

Three criteria must be met to establish a *prima facie* case of obviousness. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference. Second, there must be a reasonable expectation of success. Finally, the prior art reference, or combination of references, must teach or suggest all the claim limitations. MPEP § 2142. Applicants respectfully traverse the rejection since the prior art fails to disclose all the claim limitations and there would be no motivation to combine the references as proposed by the examiner.

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As amended, claim 49 contains several limitations that are not taught or suggested by Ibsen, including "the light having a wavelength range greater than 100 nm", "a transmissive diffraction grating attached to a frame using a mounting", and "wherein the temperature dependent wavelength shift of diffracted light at the optical detector is no more than 0.01 nm/K". Because not all the limitations of amended claim 49 are taught or suggested by Ibsen, amended claim 49 is not unpatentable over Ibsen.

Dependent claims 50-52, which are dependent from independent claim 49, were also rejected under 35 U.S.C. §103(a) as being unpatentable over Ibsen. While Applicants do not acquiesce with the particular rejections to these dependent claims, it is believed that these rejections are moot in view of the remarks made in connection with independent claim 49. These dependent claims include all of the limitations of the base claim and any intervening claims, and recite additional features which further distinguish these claims from the cited references. Therefore, dependent claims 50-52 are also in condition for allowance.

Conclusion

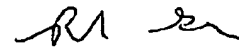
In view of the foregoing amendments, it is believed that the application is now in condition for allowance. Applicants respectfully request favorable reconsideration and the timely issuance of a Notice of Allowance. If a telephone conference would be helpful in resolving any issues concerning this communication, please contact David H. Carroll at (952) 253-4135.

Respectfully submitted,

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By:



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